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PROSEA

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Plant Resources of  
South-East Asia 12

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(3) Medicinal and  
poisonous plants 3

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# Plant Resources of South-East Asia

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No 12(3)

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Medicinal and poisonous plants 3

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R.H.M.J. Lemmens and N. Bunyapraphatsara  
(Editors)

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rupturing laterally, few-seeded. Seeds large, with thick, spongy, green testa.

*Hymenocallis* comprises about 50 species and its natural area of distribution is Central and South America. Several species other than *H. littoralis* are cultivated as an ornamental in the Malesian region, e.g. *H. caribea* (L.) Herbert, *H. narcissiflora* (Jacq.) MacBr. and *H. speciosa* (Salisb.) Salisb., but only *H. littoralis* has become naturalized.

**Ecology** *H. littoralis* occurs along the seashore and inland in moist, sandy locations at low altitude. It is cultivated in gardens up to 1500 m altitude.

**Management** *H. littoralis* is best grown in a light, well-drained potting mix of equal parts of loam, leaf mould and sand. Propagation is by seed, but more usual by offsets. Methods for large-scale propagation by tissue culture have been developed for *H. littoralis*. In-vitro production of pancratin was also successful in callus cultures, but the concentration was only about 10% of that in bulbs of field-grown plants. Experiments in the United States showed that atmospheric CO<sub>2</sub> enrichment may increase the concentration of active constituents in the bulbs by 75%.

**Genetic resources** *H. littoralis* is widely cultivated and consequently does not seem to be threatened. However, nothing is known about the genetic diversity of cultivated and naturalized plants in South-East Asia, and this may be very low. In Central America several *Hymenocallis* species are classified as endangered. In Puebla (Mexico) a germplasm collection of ornamental geophytes is maintained, including *Hymenocallis*.

**Prospects** *H. littoralis* is an interesting medicinal plant, which deserves more attention in South-East Asia. It is a source of compounds with anticancer and antiviral (including anti-HIV) activities, but the reputed beneficial effects of bulb extracts internally on asthma and cough as well as externally on wounds, swellings, bruises and boils also merit more attention and research.

**Literature** 63, 247, 393, 563, 737, 760.

**Other selected sources** 62, 120, 346, 646.

Noorma Wati Haron

from India and Burma (Myanmar), through Indo-China and Thailand, to the Malesian region.

**Uses** There are some records of the use of a root decoction of *Hypobathrum* in traditional medicine in South-East Asia. This is used externally to treat rheumatism, smallpox and yaws, as well as internally to treat stomach-ache. The sour fruits are sometimes used in chutneys. In Java, the astringent young leaves and shoot tips of a *Hypobathrum* species (possibly *H. racemosum*) are eaten raw as vegetable.

**Botany** Shrubs or small trees, often with straight trunk and pairs of horizontal branches. Leaves opposite, simple and entire, leathery, pinnately veined, with intramarginal vein, shortly petiolate; stipules interpetiolar, triangular, each pair fused at base forming a prominent median keel and encircling the twig, more or less persistent. Inflorescence an axillary spike, raceme, simple dichasium or panicle with paired short branches. Flowers bisexual, 4-merous, stalked; calyx cup-shaped or bell-shaped, with tiny lobes; corolla with short, trumpet-shaped tube and narrowly triangular to ovate lobes, contorted in bud; stamens inserted in the corolla throat; disk annular; ovary inferior, 2-celled, style hairy, with 2-lobed stigma. Fruit berry-like, fleshy, indehiscent, 1-many-seeded. Seeds flat, arranged imbricately, pendulous, with endosperm.

Malformations of the floral parts of the plant are often found. *Hypobathrum* is classified in the tribe *Hypobathreae*, together with about 20 other genera from Africa, Madagascar and tropical Asia. The taxonomy of *Hypobathrum* is poorly known. Several species have probably been confused in the literature, and it is, for example, possible that the information given here under *H. racemosum* partly applies to other *Hypobathrum* species.

**Ecology** *Hypobathrum* usually occurs in lowland forest, also in secondary forest and swamp forest, but some species may grow in the mountains, up to over 2000 m altitude.

**Genetic resources** The *Hypobathrum* species treated here are locally common and do not seem to be liable to genetic erosion.

**Prospects** Information on *Hypobathrum* is extremely scarce, including botany and medicinal properties. This precludes a judgement on the prospects as medicinal plants.

**Literature** 121, 689.

## ✓ *Hypobathrum* Blume

Bijdr. fl. Ned. Ind.: 1007 (1827).

RUBIACEAE

x = unknown

**Origin and geographic distribution** *Hypobathrum* comprises about 20 species and occurs



*Selection of species***Hypobathrum racemosum (Roxb.)****Kurz**

Forest fl. Burma 2: 51 (1877).

**Synonyms** *Petunga roxburghii* DC. (1830).**Vernacular names** Indonesia: kihapit (Sundanese), apit, babalan (Javanese). Malaysia: kayu ekur gajah, tulang betina (Peninsular). Thailand: khan laen (peninsular). Vietnam: s[uws]a, s[uws]a ca.**Distribution** Southern Burma (Myanmar), southern Indo-China, southern Thailand, Peninsular Malaysia, Java and Borneo.**Uses** The roots are used in a complex decoction to treat yaws in Cambodia.**Observations** A shrub or small tree up to 12 m tall; leaves lanceolate, 6–15(–20) cm × 2.5–4 cm; corolla 5–6 mm long, white or greenish-white; fruit ellipsoid or globose, c. 6 mm long, usually with about 8 seeds. *H. racemosum* occurs in lowland forest, often in swampy locations and secondary forest, in Java up to 600 m altitude.**Selected sources** 62, 121, 732, 789, 990.**Hypobathrum venulosum (Hook.f.)****K.M. Wong**

Tree Fl. Mal. 4: 355 (1989).

**Synonyms** *Petunga venulosa* Hook.f. (1880).**Vernacular names** Malaysia: kayu gading, tulang betina, umpaong puteh (Peninsular).**Distribution** Peninsular Malaysia; possibly also Borneo.**Uses** In Peninsular Malaysia, a decoction of the roots is used to treat rheumatism (externally) and stomach-ache (internally), and pounded roots are applied as a poultice against smallpox. The sour fruits are sometimes used in chutneys.**Observations** A shrub or small tree up to 6 m tall; leaves elliptical-oblong, 7.5–15 cm × 4–7.5 cm; corolla c. 8 mm long, white; fruit club-shaped, c. 12 mm long. *H. venulosum* occurs in lowland and hill forests, also in swampy locations.**Selected sources** 121, 334, 789, 990.

Sudibyo Supardi &amp; Hurip Pratomo

**Hypoestes polythyrsa Miq.**

Fl. Ned. Ind. 2: 852 (1858).

ACANTHACEAE

2n = unknown

**Synonyms** *Hypoestes psilostachyus* C.B. Clarke ex S. Moore (1925).**Vernacular names** Indonesia: trembuku, landep iju, lucung asu (Javanese).**Origin and geographic distribution** *H. polythyrsa* occurs throughout Java, but seems endemic to this island.**Uses** In central Java, a decoction of young branches of *H. polythyrsa* mixed with flower heads of *Artemisia cina* Berg ex Poljakov (a well-known anthelmintic plant which is imported) has been recommended as a poultice to expel maggots and intestinal worms.Some other *Hypoestes* species are used in traditional medicine in Africa, particularly *H. forskaolii* (Vahl) Sol. ex Roemer & Schultes and *H. aristata* (Vahl) Sol. ex Roemer & Schultes (these species are often confused under the name *H. verticillaris*), the roots of which are used internally to treat cough and meningitis. The leaves are used externally to treat swellings and sores. *H. triflora* (Forssk.) Roemer & Schultes is frequently used in Rwanda to treat hepatic diseases.Some *Hypoestes* species are valued as ornamentals, particularly *H. phyllostachya* Baker, often with rose to pale lavender spotted leaves.**Properties** There is no information on the phytochemistry or pharmacological properties of *H. polythyrsa*.The phenanthroindolizidine alkaloids hypoestesatins 1 and 2 have been isolated from *H. forskaolii* from East Africa; these are anti-neoplastic agents, which markedly inhibited the growth of murine P-388 lymphocytic leukaemia cell lines. Several fusicoccane diterpene ketones have also been reported in the aerial parts of this species. A hepatoprotective principle has been demonstrated in a water extract from the leaves of *H. triflora* from Rwanda; the compound responsible for the protective activity in tests with mice was benzoic acid.Several diterpenoids have been isolated from extracts of the African *H. rosea* P. Beauv.: roseanalone, roseadione, roseatoxide, hypoestoxide and dihydroestoxide. Hypoestoxide showed anti-inflammatory activity in tests with mice and could be useful in treating various inflammatory diseases.The diterpene serpendione has been isolated from *H. serpens* (Vahl) R.Br. from Madagascar; it exhibited relaxant activity on isolated rat aorta.**Botany** An erect herb up to 120 cm tall; stem thickened above the nodes, apically more or less densely short-hairy. Leaves opposite, simple and entire, elliptical-ovate to oblong-lanceolate, 3–14 cm × 1–6 cm, pubescent below or on both surfaces, often with a pale blotch above; petiole 0.5–4 cm long; stipules absent. Inflorescence an axillary

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Prosea, short for 'Plant Resources of South-East Asia', is an international programme focused on South-East Asia. Its purpose is to make available the wealth of dispersed knowledge on plant resources for education, extension, research and industry through a computerized data bank and an illustrated multivolume handbook. A thorough knowledge of plant resources is essential for human life and plays a key role in ecologically balanced land-use systems. Extensive information on the plants growing in the region is needed to enable the plant resources of each country to be used optimally. A large international team of experts is preparing the texts on particular species or genera, which are being published in commodity groups. All taxa are treated in a similar manner with details on uses, botany, ecology, agronomy or silviculture, genetic resources, breeding, prospects and literature.

This third volume completes the PROSEA trilogy on the medicinal and poisonous plants of South-East Asia, and brings the total number of papers in the 3 volumes to 548, and of species treated to 1290. The present volume includes many lesser-known species, for which in general little information on the phytochemistry and pharmacology is available compared to those treated in the first (1999) and second (2001) ones. Although presently of little importance, these plant resources may have potential for use in herbal drugs or for the isolation of bioactive compounds. The up-to-date information contained in this volume is, wherever applicable, supplemented by notes on possibilities for research and expectations for the future. Some genera/species that have recently attracted attention because of interesting pharmacological properties are included, e.g. *Butea*, *Calophyllum*, *Galbulimima belgraveana*, *Gynura* and *Morinda*. The alphabetical treatment of genera and species in this volume comprises 285 papers, half of which are supplied with an illustration. The approximately 540 species show a large variation in habit, from small herbs to large trees, and in ecology, from rain forest to habitats strongly influenced by man. A short introduction deals particularly with conservation aspects of medicinal plants, being supplementary to the general introduction in the first volume on medicinal and poisonous plants. A glossary, a list of medicinal and poisonous plants with other primary use, and several indices are included.

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